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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/284,024	04/06/1999	ULRICH DELIUS	051009/0119	1786

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EXAMINER
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HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/284,024

**Applicant(s)**

DELIUS, ULRICH

**Examiner**

Sow-Fun Hon

**Art Unit**

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 May 2004.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.  
4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3-11,15 and 16 is/are rejected.  
7) ☒ Claim(s) 17 and 18 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Amendment***

***Rejections Withdrawn***

1. The 35 U.S.C. 112, 2<sup>nd</sup> paragraph and double patenting rejections have been withdrawn due to Applicant's amendment dated 05/28/04.

***New Rejections***

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 3-11, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schumacher (previously cited US 4,486,507) in view of Grund (previously cited US 5,612,104) as evidenced by Alger (Polymer Science Dictionary, 2<sup>nd</sup> edition).

Regarding claims 1, 3-4, 15, Schumacher has a biaxially stretched (column 6, lines 50-55) tubular multiple (3) layer (column 14, lines 60-70) seamless sausage casing (skin about 200 mm long and 30 mm in diameter) (column 13, lines 15-20) which is shrinkable (column 2, lines 45-50).

Schumacher teaches that the casing film contains commercially available "Pebax", a block copolymer containing polyamide blocks (segments) and polyether blocks (segments) (column 3, lines 50-55). The polyether blocks can be poly(ethylene glycol) blocks and the polyamide blocks can be polycaprolactam (nylon 6) blocks, as evidenced by Alger.

Alger teaches that Pebax is a block copolymer obtained by coupling a hydroxy-terminated polyethylene  $\text{-HO-(CH}_2\text{-CH}_2\text{-O)}_n\text{-}$ , polypropylene or polytetramethylene glycol with a carboxy-terminated polyamide such as nylon 6 (column 409b under “polyether block amide”), and that nylon 6 is also known as polycaprolactam (column 345a under “nylon 6”):  $\text{H-(NH-[CH}_2\text{]}_5\text{-CO)}_m\text{-COOH}$ . This block copolymer corresponds to Applicant’s formula (I), where the polycaprolactam block provides  $x$  of Applicant = 5, which is within the claimed range of 5 to 11, and  $E_a$  of Applicant = H. The polyethylene glycol block provides  $X_a$  of Applicant =  $\text{-O-}$  and  $A$  of Applicant =  $\text{-CH}_2\text{-CH}_2\text{-}$ . Alger teaches that the higher the ether (glycol) content, the more flexible is the material (polyether block amide). Therefore the block lengths of  $m = 30$  to  $200$  and  $n = 4$  to  $60$  are the result of routine experimentation for the desired combination of “hardness” and “softness” (flexibility). It follows that the block lengths of  $m = 40$  to  $100$  and  $n = 10$  to  $40$  are also the result of routine experimentation for the desired combination of “hardness” and “softness” (claim 4).

The polycaprolactam block is a species of the aliphatic polyamide block and the polyethylene glycol block is a species of the aliphatic polyether block, as defined by Applicant’s specification (original claim 3). Therefore the polycaprolactam blocks inherently have a glass-transition temperature within the claimed range of from  $20$  to  $80^\circ\text{C}$ , being relatively “hard”, and the polyethylene glycol blocks inherently have a glass-transition temperature within the claimed range of from  $-100$  to  $-20^\circ\text{C}$ , being relatively “soft” compared to the polyamide blocks.

Regarding claim 5, Schumacher teaches that the layer comprises at least one aliphatic (linear) and/or partially aromatic (co-)polyamide, mixed with the remaining constituents (column 4, lines 30-35).

Regarding claim 6, Schumacher teaches that the (co-)polyamide can be nylon (polyamide) 6, nylon (copolyamide) 6/6,6, (copolyamide) nylon 6/12 and nylon (polyamide)12 (column 3, lines 20-35).

Regarding claim 7, Schumacher teaches that the proportion of the (co-)polyamide can be up to 85 % by weight, based on the total weight of the layer (column 2, line 65).

Regarding claim 9, Schumacher teaches that the sausage casing consists of multiple layers, and the further layers consist of polyolefins (column 7, lines 30-40).

Regarding claims 1, 15, Schumacher fails to teach that the sausage casing is thermoset with residual shrinkage in the range of from 5 to 20 % at 80 °C, wherein the shrinkage is measured before stuffing.

Grund teaches a polyamide sausage casing (abstract) which is biaxially stretched (column 7, lines 5-15). The casing is then thermoset for dimensional stability, and has a residual shrinkage set to between 0 to 20 % at 80 °C (column 7, lines 15-25), which contains the claimed range of from 5 to 20 %.

Therefore it would have been obvious to one of ordinary skill in the art to have thermoset the sausage casing of Schumacher in order to obtain the desired dimensional stability with residual shrinkage of from 5 to 20 % at 80 °C, as taught by Grund.

Regarding claims 10, 15-16, Schumacher fails to teach that the casing is extruded through a heated ring die.

Grund teaches that the casing is extruded through a heated ring (annular) die, and cooled rapidly to maintain the polymers in an amorphous state, and then heated and stretched by blow molding (hot air and simultaneous biaxial stretching by means of an entrapped air bubble) (column 6, lines 50-70 and column 7, lines 1-5) (claims 10, 15).

Grund teaches the coextruding of the polymer blend and another polymer blend through a coextrusion die (individual melt streams are led separately within the coextrusion die first and then combined at a combination place within the coextrusion die) to obtain a multilayer seamless tube (five-layer tubing) (column 7, lines 25-35) (claim 16).

Regarding claim 8, Schumacher fails to teach the addition of organic or inorganic pigments to the casing.

Grund demonstrates that addition of pigments, organic or inorganic, to color the casing is notoriously well known in the art (column 2, lines 40-50).

Regarding claim 11, Schumacher fails to teach the area stretching ratio.

Grund teaches that the area stretching ratio of the casing (in relation to the surface) is in the range of 6 to 14 (column 7, lines 5-15), which contains the claimed range of from about 6 to 10.

Grund demonstrates that because the claimed process of producing a seamless casing using a heated ring die, the area stretching ratio of the biaxially stretched casing, and the addition of pigments to the sausage casing, are all well known in the art, it would have been obvious to one of ordinary skill in the art to have used these teachings in the production of the sausage casing of Schumacher in order to obtain the desired end-product.

*Response to Arguments*

4. Applicant's arguments with respect to claims 1, 3-11, 15-16 have been considered but are moot in view of the new ground(s) of rejection.

*Allowable Subject Matter*

5. Claims 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The cited prior art of record, US 4,486,507 fails to teach, even in combination with US 5,612,104, the combination of a biaxially stretched and thermoset, tubular, seamless, multiple-layer sausage casing having a residual shrinkage in the range of from 5 to 20% at 80 °C, wherein the shrinkage is measured before stuffing, in which at least one of the layers comprises a block copolymer containing "hard" aliphatic polyamide blocks having a glass-transition temperature of from 20 to 80 °C and "soft" aliphatic polyether blocks having a glass-transition temperature of from -100 to -10 °C, which block copolymer corresponds to formula III below.



where

Y is -CO-, -CO-[CH<sub>2</sub>]<sub>z</sub>-CO- or -CO-C<sub>6</sub>H<sub>4</sub>-CO-,

where C<sub>6</sub>H<sub>4</sub> is *meta*- or *para*-phenylene, or is

-CO-N([CH<sub>2</sub>]<sub>x-1</sub>-CH<sub>3</sub>)-CO-,

-CO-N([CH<sub>2</sub>]<sub>x-1</sub>-CH<sub>3</sub>)-CO-[CH<sub>2</sub>]<sub>z</sub>-CO-N([CH<sub>2</sub>]<sub>x-1</sub>-CH<sub>3</sub>)-CO- or

-CO-N([CH<sub>2</sub>]<sub>x-1</sub>-CH<sub>3</sub>)-CO-C<sub>6</sub>H<sub>4</sub>-CO-N([CH<sub>2</sub>]<sub>x-1</sub>-CH<sub>3</sub>)-CO-,

where C<sub>6</sub>H<sub>4</sub> has the meanings specified,

o is an integer from 10 to 150 and

p is an integer from 4 to 100 and

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wherein  $X_a = -O-$  and  $x = 5$  to 11.

### ***Conclusion***

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for



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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*S. Hon*

Sow-Fun Hon

07/28/04

*Harold Pyon*  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

8/3/04